

**AMENDMENTS TO THE CLAIMS**

Please cancel claims 1-14 and amend claims 15-21 as follows:

Claims 1-14 (Cancelled).

15. (Currently Amended) An automatic frequency controlling method in a code division multiple access system using a spectrum spreading technique which has a frame format in which pilot symbols and data symbols are time multiplexed for transmission and in which a variable transmission symbol rate is realized by making a spreading rate variable under a constant chip rate, said method comprising:

in-phase summing in at least two different in-phase summation rates the pilot symbols having a complex vector expression over a predetermined length of a symbol interval after converting the pilot symbols into the complex vector expression by canceling a data modulated component of the pilot symbols; and

estimating a frequency offset based on a result of conjugate complex multiplication of a plurality of said complex vector expressions which are subjected to the in-phase ~~addition~~ summing.

16. (Currently Amended) An automatic frequency controlling method according to claim 15, said method further comprising:

controlling an oscillation frequency of a crystal oscillator in accordance with an estimation of the frequency offset calculated through the ~~estimation~~ estimating of the frequency offset;

converting ~~the a~~ received frequency signal into an intermediate frequency signal in accordance with the oscillation frequency; and

orthogonally demodulating the intermediate frequency signal based on the oscillation frequency.

17. (Currently Amended) An automatic frequency controlling method according to claim 15, said method further comprising:

obtaining a baseband signal having an in-phase component and an orthogonal component through the orthogonal ~~modulation~~ demodulation and converting into digital signals by A/D converters, respectively;

inversely spreading the digital signals by inversely spreading units to separate the pilot symbols from the data symbols; and

converting the pilot symbols into complex vector expressions by canceling the data modulated components of the pilot ~~signals~~ symbols.

18. (Currently Amended) An automatic frequency controlling system in a code division multiple access system using a spectrum spreading technique which has a frame format in which pilot symbols and data symbols are time multiplexed for transmission and in which a variable transmission symbol rate is realized by making a spreading rate variable under a constant chip rate, comprising:

an orthogonal demodulator converting a receive signal into a baseband signal having an in-phase component and an orthogonal component;

inversely spreading units inversely spreading the in-phase component and the orthogonal component the baseband signal;

pilot symbol interval detectors pilot symbols from the data symbols;

inverse ~~demodulating~~ modulating units converting the pilot symbols into complex vector expressions by canceling data modulated components of the pilot symbols;

an in-phase summing section in-phase summing in at least two different manners, the complex vector expressions of the pilot symbols over a predetermined length of the a symbol section; and

an estimating section estimating the frequency offset from conjugate complex multiplication of a plurality of said complex vector expressions which are subjected to the in-phase summation.

19. (Currently Amended) An automatic frequency controlling system according to claim 18, wherein the in-phase summing section in-phase summing in at least two different manners comprises:

a buffer memory storing the pilot symbols over at least two symbol intervals of the complex vector signal received from the ~~demodulator~~ inverse modulating units; and

an in-phase adder in-phase summing the outputs of the buffer memory, and

the estimating section estimating the frequency offset comprises:

a complex adder summing the outputs of the in-phase ~~adders~~ adder which correspond to the in-phase components and the orthogonal components of the base band signal;

a conjugate complex multiplier ~~storing the sum in a second buffer memory and~~ carrying out conjugate complex multiplication to outputs of the second buffer memory; and

an ~~angle/frequency~~ angle and frequency offset converter averaging and converting outputs of the conjugate complex multiplier into angular components, and converting the angular components into frequency components to estimate ~~[[a]]~~ the frequency offset.

20. (Currently Amended) An automatic frequency controlling system according to claim 18, further comprising:

a controlling section controlling the oscillation frequency of a crystal oscillator in accordance with an estimation of the frequency offset obtained through the estimation of the frequency offset; and

a converting section converting the received ~~frequency~~ signal into an intermediate frequency signal in accordance with the oscillation frequency,

wherein the intermediate frequency signal is orthogonally demodulated using the oscillation frequency.

21. (Currently Amended) A CDMA receiver in a code division multiple access system using a spectrum spreading technique which has a frame format in which pilot symbols and data symbols are time multiplexed for transmission an in which a variable transmission symbol rate is realized by making a spreading rate variable under a constant chip rate, comprising:

a mixer for converting a received frequency signal into an intermediate frequency signal;

a first local frequency generator supplying the mixer with a local oscillation signal;

an orthogonal demodulator for orthogonally demodulating the intermediate frequency signal in accordance with a second local frequency of a second local frequency generator;

inversely spreading units converting in-phase components and orthogonal components of the baseband signal received from the orthogonal demodulator into ~~analog/digital~~ digital signals;

pilot symbol demodulators separating the inversely spread signal outputted from the inversely spreading units into the pilot symbols and the data symbols, and converting the pilot symbols into complex vector expressions by canceling the data modulated component of the pilot symbols;

inversely ~~demodulated~~ modulated pilot symbol in-phase adders for in-phase summing in at least two different manners, the complex vector expressions of the pilot symbols over a predetermined length of ~~the~~ a symbol section;

a frequency offset estimator estimating ~~the~~ a frequency offset based on conjugate complex multiplication of a plurality of said complex vector expressions which are subject to the in-phase ~~summation~~ summing; and

a reference local frequency generator generating a reference local frequency based on the frequency offset and delivering the reference local frequency to the first and second local frequency generators.